HUMAN PERCEPTION OF THE HAWAIIAN ENDANGERED SPECIES: A PRELIMINARY REPORT ON A THREE-YEAR RANDOM SURVEY

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INTRODUCTION

The rare and endangered species of Hawai'i represent one of the major problems facing those interested in preserving the exceptional natural heritage of the Hawaiian archipelago. It is well known that the Hawaiian Islands have a diverse and unique native biota. Most regretfully, a relatively large number of endemic species have already become extinct within historic times and several more are on the verge of disappearing forever.

There are a number of reasons for the extraordinary demise of so many of the native Hawaiian species. Exploitative land use, the impact of large feral herbivore populations, the introduction of aggressive weed species, fires, predatory and pathogenic organisms, and general habitat destruction have all taken their toll on the unique and vulnerable endemic species of Hawai'i. The impact of these problems has become increasingly acute in recent years.

OBJECTIVES

The basic assumption underlying the research discussed below is that a general consensus regarding the importance of the rare and endangered species is lacking. In order to determine citizen attitudes relevant to this issue, an ongoing research effort was initiated in 1976 to survey human perception of the problem. The goal of this project has been two-fold in nature: on one hand, there has been an attempt to quantify perception of the real or potential economic, scientific, aesthetic, ecological, and biological value of the rare and endangered species; on the other hand, it has also been the aim of this research to stimulate more study into the problem so that an objective measurement of the public's attitudes can become known. In other words, this is basically a pioneering effort to monitor popular feelings about an issue of growing concern and urgency. Furthermore, it has been hoped that the survey process will in some way elevate public awareness of the problems so that educated decisions affecting the future of the native Hawaiian plants, animals, and habitats can be made.

METHODOLOGY

In order to measure the public's attitudes regarding the real or potential value of the species in question, a series of random surveys was taken of citizens from various parts of the Island of O'ahu. Over a three-year period, some 15 undergraduate students administered random surveys throughout the island as partial fulfillment of a course requirement in the General Science Department of the University of Hawaii at Manoa.

The sample survey size for each student was approximately 200. In 1976, eight students (Arthur Horibe, Rose Souza, Cynthia Hara, Jean Higa, Ronna Hazel, Mary Sniffen, Lori Fowler, & Diane Rose) completed their field work. In 1977, three students (Alva Young, Bobbie Daniels, & Ann Kagawa) completed their field work. And in 1978, four more students (Harold Yap, Debra Yuen, Joni Tanonaka, & Terry Tamura) completed their field work. The combined effort so far has compiled a sample size of approximately 3000.

The majority of the individual surveys were taken at various shopping centers located on O'ahu. Randomness and general objectivity in survey procedure were stressed. However, although these aspects were crucial to the usefulness of the data and the validity of the interpretations, common problems facing the social scientist may not have been under satisfactory control. For example, many people refused to answer the survey; and as in many surveys of human perception, there is always the question as to whether or not the persons surveyed did respond to the questions according to their true attitudes rather than socially acceptable ones. Moreover, one can argue that the structure of the questions themselves may have influenced the respondents to answer in a socially approved way.

Indeed it is hard to study the attitudes in question without biasing the responses in favor of preservation. This is a particularly difficult problem when there is no "price" involved in giving the "right" answer. In fact, this difficulty (i.e., personal financial commitment) is generally problematic in studies of quality of life (Dr. Earl Babbie, pers. comm. 1976). With this basic problem in mind, we revised the original survey administered in 1976 so that those taken in 1977 and 1978 had (what we considered to be) less ambiguity and better research design.

Copies of the 1976 and revised 1977-1978 surveys are presented in the Appendix. Note that data regarding age, length of residency in Hawai'i, educational background, ethnicity, and sex was also solicited from those answering the survey. Generally these showed relatively close correlations to these same characteristics manifested in the overall state population. Cross tabulation analysis of these characteristics (of the people surveyed) and the attitudes reflected in their answers to the first nine questions regarding their perceptions of the importance of the endangered species may reveal some interesting aspects of

public opinion concerning the issues at hand. This data is still in the process of being analysed.

RESULTS

Combined tabulations for the individual years 1976, 1977, and 1978 are presented in Tables 1 and 2. It should be noted that questions 4, 5, and 6 for 1976 have been shifted to questions 5, 6, and 7, respectively, in the 1977 and 1978 surveys; and question "7" for 1976 has been shifted to "4" in the 1977 and 1978 surveys.

A cursory examination of the data reveals an apparently strong concern for the protection of Hawai'i's endangered plants and animals. The majority of those surveyed over the three-year period feel that these species have an important research potential, have significant roles in the Hawaiian ecosystems, serve useful purposes, are important parts of Hawai'i's heritage, and have significant aesthetic value. However, non-native plants are also considered to be of equal value and the percentages of undecided responses to some questions tends to reduce the overall positive response of the public to the questions regarding the protection of the endangered species of Hawai'i.

The general difficulties of social survey research notwithstanding, it is hoped that this preliminary effort will stimulate other students, scientists, and concerned citizens to improve on the research design and possibly produce a more complete description and explanation of the public's attitudes pertinent to this problem.

TABLE 1. Survey of perception of endangered species (1976-1978).

(Question) Variables	Strongly Agree	Agree	Strongly Disagree	Disagree	Uncertain	No Response
			1976			
1	781(52%)	606(40%)	19(1%)	31(2%)	52(3%)	14(1%)
2	62(4%)	232(15%)	334(22%)	593(39%)	207(14%)	75(5%)
3	284(19%)	732(49%)	41(3%)	99(7%)	271(18%)	76(5%)
4	42(3%)	101(7%)	673(45%)	517(34%)	91(6%)	79(5%)
5	748(50%)	630(42%)	13(1%)	38(3%)	58(4%)	16(1%)
6	184(12%)	735(49%)	75(5%)	188(13%)	266(15%)	95(6%)
7	575(38%)	696(46%)	11(1%)	34(2%)	94(6%)	93(6%)
8	64(4%)	204(14%)	288(19%)	612(41%)	237(16%)	98(7%)
9	865(58%)	561(37%)	10(1%)	19(1%)	37(2%)	11(1%)
			1977			
1	347(71%)	128(26%)	--	4(1%)	4(1%)	4(1%)
2	11(2%)	61(13%)	130(27%)	165(34%)	113(23%)	7(1%)
3	152(31%)	218(45%)	8(2%)	25(5%)	79(16%)	5(1%)
4	224(46%)	144(30%)	64(13%)	33(7%)	20(4%)	2(0%)
5	56(11%)	50(10%)	127(26%)	204(42%)	48(10%)	2(0%)
6	262(54%)	170(35%)	10(2%)	22(5%)	17(3%)	6(1%)
7	122(25%)	225(46%)	12(2%)	50(10%)	74(15%)	4(1%)
8	16(3%)	117(24%)	43(9%)	157(32%)	143(29%)	11(2%)
9	300(62%)	152(31%)	3(1%)	8(2%)	14(3%)	10(2%)
			1978			
1	383(60%)	232(36%)	4(1%)	5(1%)	6(1%)	10(2%)
2	25(4%)	78(12%)	173(27%)	268(42%)	85(13%)	11(2%)
3	159(25%)	382(60%)	15(2%)	17(3%)	56(9%)	11(2%)
4	214(33%)	351(55%)	6(1%)	23(4%)	36(6%)	10(2%)
5	12(2%)	27(4%)	323(50%)	226(35%)	40(6%)	12(2%)
6	286(45%)	283(44%)	11(2%)	13(2%)	36(6%)	11(2%)
7	135(21%)	329(51%)	16(3%)	70(11%)	82(13%)	8(1%)
8	34(5%)	198(31%)	69(11%)	189(30%)	137(21%)	13(2%)
9	323(50%)	264(41%)	2(0%)	8(1%)	29(5%)	14(2%)

TABLE 2. Survey of perception of endangered species (1976-1978).

1976

(Question) Variables						
10	No Response	Under 15	15-20	21-30	31-40	41 or Over
	69 4.6%	229 15.2%	335 22.3%	379 25.2%	202 13.4%	289 19.2%
	No Response	Less Than Yr	1-4	5-10	11-20	More
11	113 7.5%	219 14.6%	247 16.4%	160 10.6%	321 21.4%	443 29.5%
	No Response	Inter. Sch	High Sch	College	Other	
12	99 6.6%	196 13.0%	564 37.5%	557 37.0%	87 5.8%	
	No Response	Japanese	Caucasian	Hawaiian	Filipino	Other
13	197 13.1%	338 22.5%	452 30.0%	109 7.2%	65 4.3%	342 22.8%

TABLE 2—Continued.

1977

(Question) Variables	No Response	Under 15	15-20	21-25	26-30	31-40	41-50	Over 50
10	9 2%	24 5%	135 28%	78 16%	64 13%	80 16%	59 12%	38 8%

	1	2-4	5-10	11-20	Over 20
11	94 19%	34 7%	42 9%	151 31%	166 34%

	Intermediate Sch	High Sch	College	Other
12	24 5%	233 48%	222 46%	5 1%

	Japanese	Caucasian	Chinese	Hawaiian	Filipino	Korean	Samoan	Other	No Response
13	97 20%	79 16%	138 28%	20 4%	37 8%	27 6%	11 2%	57 12%	21 4%

	Male	Female	No Response
14	197 40%	184 38%	7 2%

TABLE 2—Continued.

1978

(Question) Variables						
	No Response	Under 15	15-20	21-30	31-40	Over 40
10	11 2%	16 3%	318 50%	123 19%	74 2%	98 15%
	No Response	Less Than 1 Yr	1-4	5-10	11-20	Over 20
11	19 3%	52 8%	61 10%	67 10%	281 44%	160 25%
	No Response	Inter. Sch	High Sch	College	Other	
12	1 0%	244 38%	233 35%	160 25%	3 0%	
	No Response	Japanese	Caucasian	Hawaiian	Filipino	Other
13	16 3%	186 29%	163 25%	31 5%	44 7%	200 31%
	No Response	Male	Female			
14	8 1%	309 48%	323 50%			

APPENDIX 1. Questionnaires used during the perception of endangered species study (1976 & 1977-78).

This is a survey to find out how the people of Hawaii feel about the rare native plants and animals of Hawaii. All questions are optional; but please answer as best you can. Mahalo.

Can you guess how many native Hawaiian plants and animals are in danger of disappearing completely from the Hawaiian environments? _____ (How many?)

(Please check the appropriate box for each of the following questions.)

SA = strongly agree
A = agree
D = disagree
SD = strongly disagree
U = undecided (no opinion)

1. The endangered species, like all species, have a right to live.
   SA ☐ A ☐ D ☐ SD ☐ U ☐
2. Economic progress is more important than the native plants and animals.
   SA ☐ A ☐ D ☐ SD ☐ U ☐
3. The species provide important research potential.
   SA ☐ A ☐ D ☐ SD ☐ U ☐
4. Native plants and animals serve no useful purpose.
   SA ☐ A ☐ D ☐ SD ☐ U ☐
5. The native plants and animals are an important part of Hawaii's natural heritage.
   SA ☐ A ☐ D ☐ SD ☐ U ☐
6. Non-native plants and animals are equally desirable.
   SA ☐ A ☐ D ☐ SD ☐ U ☐
7. The ecological functions of the native plants and animals should be protected.
   SA ☐ A ☐ D ☐ SD ☐ U ☐
8. The protection the native plants and animals would limit recreational needs.
   SA ☐ A ☐ D ☐ SD ☐ U ☐
9. The native plants and animals add to the environmental beauty of Hawaii.
   SA ☐ A ☐ D ☐ SD ☐ U ☐

What should be done about the endanger plant and animal situation? Suggestions? Use the back of this paper.

10. Your age: under 15 15-20 21-25 26-30 31-40 41-50 over 50
11. How long have you lived in Hawaii? _____
12. Educational Background: Intermediate School _____ High School _____ College _____
13. What ethnic background best describes you? _____

This is a survey to find out how the people of Hawaii feel about the endangered native plants and animals of Hawaii. All questions are optional; but please answer as best you can. Mahalo.

(Please check the appropriate box for each of the following questions.)

SA = strongly agree
A = agree
D = disagree
SD = strongly disagree
U = undecided (no opinion)

		SA	A	D	SD	U
1.	The endangered plants and animals, like all species, should be protected by man.	☐	☐	☐	☐	☐
2.	Economic progress is more important than the preservation of the endangered native plants and animals.	☐	☐	☐	☐	☐
3.	The endangered plants and animals may have an important research potential.	☐	☐	☐	☐	☐
4.	The endangered plants and animals may have an important role in Hawaii's Ecology.	☐	☐	☐	☐	☐
5.	The endangered plants and animals serve no useful purpose.	☐	☐	☐	☐	☐
6.	The endangered plants and animals are an important part of Hawaii's natural heritage.	☐	☐	☐	☐	☐
7.	Non-native plants and animals are just as valuable as the endangered ones.	☐	☐	☐	☐	☐
8.	The protection of the endangered plants and animals would limit recreational use of their habitats.	☐	☐	☐	☐	☐
9.	The endangered plants and animals of Hawaii add to her environmental beauty.	☐	☐	☐	☐	☐

10. Your age: under 15 15-20 21-25 26-30 31-40 41-50 over 50

11. How long have you lived in Hawaii? _____

12. Educational Background: Intermediate School _____ High School _____
(Highest level completed) College _____

13. Of which ethnic background do you consider yourself?

Japanese	Filipino
Chinese	Korean
Caucasian	Samoan
Hawaiian	Other _____

14. Your sex: Male Female